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WHY INDIA MATTERS: THE CONFLUENCE OF A BOOMING ECONOMY, AN ACTIVIST SUPREME COURT, AND A THIRST FOR ENERGY

I. INTRODUCTION

As the world begins to acknowledge the impact of climate change, individual nations are expected to address environmental concerns and the growing demands for energy and oil consumption. Today, India is the sixth largest energy consumer in the world.¹ To sustain its current economic growth of five percent per annum, India will need to generate four percent more energy annually.² In congruence with the growing need for fuel and energy is the need for a strong uniform environmental policy that will be enforced throughout the Indian subcontinent.³ In a country where corruption overruns the executive branch and plagues public officials, the Supreme Court of India is particularly active in its approach towards molding an ideal body of environmental law.⁴

Remarkably, India enacted significant environmental laws decades ago, and the Supreme Court of India has developed a rich body of law that guarantees a fundamental right to live in a clean and healthy environment.⁵ Through the development of Public Interest Litigation, the Supreme Court of India has greatly broadened the procedural right of Indian citizens to present environment-related challenges against the government and its agencies.⁶

Beyond the judiciary, India's government is addressing an array of environmental issues related to its accelerated economic growth; for example, the phenomenal growth of personal automo-

1. See *Energy Trends in China and India: Implications for the United States: Hearing Before the S. Comm. on Foreign Relations*, 109 Cong. 35 (2005) (prepared statement of Mikhal E. Herberg, Director, Globalization and Asian Energy Security Program) [hereinafter *Energy Trends in China and India*] (stating India's rank in terms of population).

2. See *id.* (setting forth background for India's energy demands).

3. For a discussion of India's need for uniform enforcement, see *infra* notes 65-97 and accompanying text.

4. For a discussion of the Indian Supreme Court's activism, see *infra* notes 81-99 and accompanying text.

5. For a discussion of an environmental fundamental right, see *infra* notes 22-34 and accompanying text.

6. For a discussion of Public Interest Litigation, see *infra* notes 35-42 and accompanying text.

bile sales.⁷ On one hand, the personal automobile is a symbol of pride for a new and burgeoning middle class. On the other hand, the increasing number of vehicles contributes to poor air quality and pollution in major Indian cities and symbolizes India's dependence on foreign oil and its struggle to achieve energy sustainability.⁸

This Comment focuses on the challenges India must face on a domestic and international front in order to sustain its economic growth. Part II addresses the relevant background material for India's environmental laws, the development of Public Interest Litigation, the current levels of pollution, and India's current energy situation.⁹ Part III offers a critical analysis of the Indian Supreme Court's handling of environment-related matters and how the Court must cope with rampant corruption among public officials.¹⁰ Additionally, Part III evaluates India's energy diplomacy efforts and the concerns that the United States has raised regarding India's emerging energy needs.¹¹ Finally, Part IV addresses "why India matters," and the impact India's booming economy and energy demands will have on other developing nations and the world.¹²

II. BACKGROUND

A. Legislative Background

Over the last forty years the Indian Parliament has taken measures to enact significant environmental regulations.¹³ In 1974, the government passed the Water Prevention and Control of Pollution Act (Water Act);¹⁴ its purpose is to "provide for the prevention and

7. See Letter from Anumita Roychowdhury, Associate Director, Centre for Science and Environment, to Shri P. Chidambaram, Union Minister of Finance, (Dec. 18, 2006), available at <http://www.cseindia.org/campaign/apc/letter.htm> (tracking increase in vehicle registration). In the capital city of Delhi, vehicle registration for cars alone has increased by 157%. *Id.*

8. See *id.* (linking vehicles to air pollution). In the city of Delhi, vehicles are responsible for 72% of air pollution. *Id.*

9. For a discussion of background information on India's environmental laws and current energy situation, see *infra* notes 13-64 and accompanying text.

10. For an analysis of the Supreme Court of India's activist role and the government's approach to automobile emissions, see *infra* notes 65-118 and accompanying text.

11. For an analysis of India's energy diplomacy efforts and rising energy demands, see *infra* notes 119-55 and accompanying text.

12. For a statement of the impact of India's development, see *infra* notes 156-94 and accompanying text.

13. For details on India's environmental legislation, see *infra* notes 13-21 and accompanying text.

14. The Water Act, No. 6 of 1974, India Code (1993) (aspiring to cure ills of water pollution and establishing an early framework).

control of water pollution and the maintaining and restoring of wholesomeness of water.”¹⁵ The Water Act established Central and State Pollution Control Boards to oversee the “prevention, abatement, and control of water pollution.”¹⁶ The Boards are responsible for conducting site inspections and acquiring information regarding non-compliance with any aspect of the Water Act.¹⁷

Similarly, in 1981 the government enacted the Air Prevention and Control of Pollution Act (Air Act) “to provide for the prevention, control, and abatement of air pollution.”¹⁸ Like the Water Act, the Air Act provides for Central and State Control Boards to handle all matters associated with the improvement of air quality.¹⁹

In response to the Water and Air Acts, the Indian legislature promulgated the Environment Protection Act (Environment Act) in 1986 to cure deficiencies left in India’s core body of environmental law.²⁰ The Environment Act provides the central government with the broad power to take all measures necessary “for the purpose of protecting and improving the quality of the environment and preventing, controlling, and abating environmental pollution.”²¹ Together, these pieces of environmental legislation provide a framework for the Indian people, as well as the judiciary, to enforce environmental protections.

B. The Indian Constitution and Fundamental Rights

India’s most powerful statement on the environment is a constitutional amendment; Amendment 42 to Article 48A, which includes a provision for environmental protection and states that a

15. *Id.* pmb. (establishing purpose of Water Act).

16. *Id.* ch. 4 (defining powers and functions of environmental control boards under Water Act).

17. *See id.* (stating responsibilities of Boards).

18. The Air Act, No. 14 of 1981; India Code (1993) (establishing purpose of Air Act).

19. *See generally id.* (describing role of environmental control boards under Air Act).

20. *See* The Environment Protection Act, No. 29 of 1986, India Code (1993) (providing examples of possible measures to expand environmental protection).

21. *See id.* pmb. (stating purpose of Environment Protection Act). *See also* India, Environments & Forests, <http://india.gov.in/sectors/environment/index.php> (last visited Oct. 26, 2008) (providing general overview of Indian environmental legislation) The Indian Government has passed several other pieces of environmental legislation, particularly to address compliance and enforcement (i.e., the National Environment Appellate Authority Act and the National Environmental Tribunal Act). *Id.*

clean and healthy environment is now a fundamental duty.²² Article 48A of the Indian Constitution states, “[t]he State shall endeavour to protect and improve the environment.”²³ The key fundamental rights provision of the Indian Constitution, Article 21, guarantees that “[n]o person shall be deprived of his life or personal liberty except according to procedure established by law.”²⁴ Under this provision, the Court has expanded the “right to life” to include protection from harmful environmental elements.²⁵ In a seminal decision, *Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh*,²⁶ the Supreme Court of India resolved issues related to environmental and ecological balance as a result of a quarrying operation that mined limestone.²⁷ In its ruling, the Supreme Court ordered the permanent closure of the quarries.²⁸ The Court recognized that its judgment would have great financial consequences for the business, but noted

it is a price that has to be paid for protecting and safeguarding the right of the people to live in [a] healthy environment with minimal disturbance of ecological balance and without avoidable hazard to them and to their cattle, homes and agricultural land and undue affectation of air, water and environment.²⁹

While the Supreme Court did not explicitly refer to Article 48A nor Article 21 of the Indian Constitution, its judgment was in accord with these fundamental environmental rights.³⁰

In a separate decision by the High Court of Andhra Pradesh, *T. Ramakrishna Rao v. Hyderabad Urban Development*,³¹ the court expressly invoked Article 21 and noted that the right to a clean envi-

22. INDIA CONST. art. 48A: amended by the Constitution (Forty-Second Amendment) Act, 1976 (amending Part IVA of Indian Constitution to include environmental concerns and improvements).

23. *Id.* (noting fundamental duty to protect environment).

24. *Id.* art. 21 (guaranteeing fundamental rights).

25. For a discussion of the expansion of rights, see *infra* notes 26-34 and accompanying text.

26. (1986) 1985 S.C.R. 652.

27. *See id.* (implying fundamental right to clean environment where balancing ecological interests and industrialization).

28. *See id.* (stopping quarry operation).

29. *Id.* at ¶ 12 (striking balance firmly in favor of protecting right to clean environment).

30. For a discussion of the facts and holding of the case, see *supra* notes 25-9 and accompanying text.

31. Writ Petitions No. 36929 of 1998 (July 20, 2001), available at <http://www.elaw.org/node/1843>.

ronment is a fundamental right when it stated, “the slow poisoning of the atmosphere caused by the environmental pollution and spoliation should be regarded as amounting to a violation of Article 21 of the Constitution.”³² The court further asserted that it is “the legitimate duty of the Courts as the enforcing organs of the constitutional objectives to forbid all actions of the State and the citizens from upsetting the ecological and environmental balance.”³³ Thus, the Supreme Court of India and other lower courts have expanded fundamental rights within the penumbra of the Indian Constitution to include environmental protections and have judiciously supported a right to a clean and healthy environment.³⁴

C. Public Interest Litigation

The Supreme Court of India’s vehicle for enforcing environmental protection is Public Interest Litigation.³⁵ Public Interest Litigation is “purely a matter of constitutional law in which the writ jurisdiction of the Supreme Court or any one of the provincial High Courts is invoked . . . to enforce . . . fundamental rights.”³⁶ This allows any Indian citizen to file a writ of appeal directly with the Supreme Court concerning the protection of a fundamental right.³⁷ To facilitate judicial access, the Court has declared that a person “may move the Court even by just writing a letter.”³⁸ This relaxation of the *locus standi* requirements allows public interest attorneys to present cases before the Court when a fundamental right is at stake.³⁹

32. *Id.* at ¶ 22 (addressing fears that sewage and urban development adversely affects Plaintiff’s right to clean environment).

33. *See id.* (elevating right to clean environment as aspect of right to life).

34. For a discussion of the constitutional basis for environmental protection, see *supra* notes 22-34 and accompanying text.

35. For a general description of Public Interest Litigation, see *infra* notes 36-42 and accompanying text.

36. J. Mijin Cha, *A Critical Examination of the Environmental Jurisprudence of the Courts of India*, 10 ALB. L. ENVTL. OUTLOOK J. 197, 202 (2005) (quoting Michael R. Anderson & Anees Ahmed, *Assessing Environmental Damage under Indian Law*, 5 REV. EUR. COMMUNITY & INT’L ENVTL. L. 335, 336 (1996)).

37. *See* Michael R. Anderson & Anees Ahmed, *Assessing Environmental Damage under Indian Law*, 5 REV. EUR. COMMUNITY & INT’L ENVTL. L. 335, 336 (1996) (explaining how Article 21 guarantee of right to life was expanded to include environmental rights).

38. Armin Rosencranz & Michael Jackson, *The Delhi Pollution Case: The Supreme Court of India and the Limits of Judicial Power*, 23 COLUM. J. ENVTL. L. 223, 230 (2003) (quoting *Bandhua Mukti Morcha v. Union of India*, A.I.R. 1984 S.C. 802).

39. *See id.* (summarizing creation and development of Public Interest Litigation).

As a result, Public Interest Litigation is the module for major environmental protection advancement through the Indian court system.⁴⁰ Through Public Interest Litigation, the Supreme Court has taken steps to recognize that good health is a fundamental right, and “so are conditions that promote good health, such as clean air and water.”⁴¹ Ultimately, through a series of cases, the Court determined that there is an obligation to protect the environment that is derived from the protection of fundamental rights.⁴²

D. Enterprise and Industrialization

As India continues to industrialize, this new wave of economic progress poses significant environmental burdens. This is due, in part, to the marked difference between the Indian government’s treatment of small and large enterprises.⁴³ The government nurtures growth and development of small enterprises as a means to hone entrepreneurial talent and to “[help] in developing innovative and locally appropriate indigenous talent.”⁴⁴ These smaller enterprises are particularly important to the Indian economy because they provide employment opportunities and yield high returns on investment.⁴⁵ For example, a report in 2000 indicated that there were approximately three million small enterprises “employing nearly 16.7 million persons” which “account[s] for a 35 per cent share of India’s total exports and about 40 per cent of its industrial manufactures [sic].”⁴⁶ Nevertheless, because of their economic

40. See M.C. Mehta, Book Excerpt, *The Accountability Principle: Legal Solutions to Break Corruption’s Impact on India’s Environment*, 21 J. ENVTL. L. & LITIG. 141, 145 (2006) (emphasizing role of Public Interest Litigation over last twenty-five years). “It was the procedural mechanism that allowed for citizen suits against the government and polluters, and the tool that the Court continues to use to protect [] fundamental constitutional rights.” *Id.*

41. See Rosencranz & Jackson, *supra* note 38, at 231 (explaining that Public Interest Litigation expanded liberty rights to include environmental protections).

42. See *id.* (noting judicial determinations). See generally M.C. Mehta v. Union of India, A.I.R. 1987 S.C. 1086; *Bandhua Mukti Morcha v. Union of India*, A.I.R. 1984 S.C. 802; *Charan Lal Sahu v. Union of India*, A.I.R. 1990 S.C. 1480 (noting collectively Court’s holdings of government obligation to protect environment).

43. See Clare D’Souza & Roman Peretiatko, *The Nexus Between Industrialization and Environment: A Case Study of Indian Enterprises*, 13 ENVTL. MGMT. & HEALTH 80, 85 (2002) (explaining that government monitors large entities more than small entities).

44. *Id.* at 83 (exploring link between pollution and size of business).

45. See *id.* at 83-4 (restating benefits and values of small scale industry to dynamic economy).

46. *Id.* at 84 (stating economic contribution of small scale enterprises to India’s continued growth).

contributions and relative size, smaller enterprises have largely operated under the radar of environmental regulation.⁴⁷

E. Current Levels of Pollution

Over the last decade, policy-makers have become alarmed at the impacts of increasing levels of air pollution and climate change upon the Indian subcontinent.⁴⁸ In 2004, more than eighty-four percent of the Indian population inhaled dangerously poor air in the eighty-three cities where air quality monitoring data was available.⁴⁹ Data available for Bangalore, India, the IT capital of the region, indicates that the suspended particulate matter (SPM) is nearly triple the national standard.⁵⁰ Furthermore, in the capital city of Delhi, vehicle exhaust causes seventy-two percent of air pollution.⁵¹ Despite the city's efforts to phase out twelve thousand diesel buses, the number of diesel cars has increased by over 420 percent in the last decade.⁵² Most striking, is the fact that "the total number of diesel cars in Delhi is equivalent to adding particulate emissions from nearly thirty thousand diesel buses."⁵³ According to the World Health Organization (WHO), Delhi is one of the ten most polluted cities in the world.⁵⁴ In New Delhi, the metropolitan

47. See *id.* at 84-5 (explaining lax enforcement of environmental laws). "Where environmental laws do exist in India they are largely not enforced, and just 7 per cent of Indian enterprises are estimated to comply with pollution-control guidelines." *Id.* at 85.

48. See generally Subodh Sharma et al., *Greenhouse Gas Emissions from India: A Perspective*, 90 CURRENT SCI. 326 (2006), available at, <http://www.iisc.ernet.in/current-sci/feb102006/326.pdf> (discussing climate change due to increase in greenhouse gases). See generally CTR. FOR SCI. & ENV'T, AIR POLLUTION BULLETIN – OCTOBER 2006 (2006), <http://www.cseindia.org/campaign/apc/pdf/smog-2006-oct-2-pollutedair.pdf> [hereinafter AIR POLLUTION BULLETIN – OCTOBER 2006] (discussing data on air quality); see also generally Richard McGregorand & Jo Johnson, *China and India Face Pollution Timebomb*, FIN. TIMES, Mar. 3, 2007, available at <http://archive.gulfnews.com/articles/07/03/03/10108254.html> (discussing climate change impact in India).

49. See Richard McGregorand & Jo Johnson, *supra* note 48 (summarizing impact of climate change in India and China with supportive statistical data).

50. See Keya Acharya, *Environment-India: IT Hub in Acute Pollution Distress*, INTER PRESS SERVICE NEWS AGENCY, Feb. 5, 2008, <http://ipsnews.net/news.asp?idnews=41070> (focusing on pollution in southern Indian metropolises).

51. See Letter from Anumita Roychowdhury, *supra* note 7 (drawing detailed attention to relationship between vehicle congestion and pollution in New Delhi).

52. See *id.* (reciting relevant statistics as background).

53. *Id.* (comparing pollution contribution between diesel cars and buses).

54. See Zhinqun Zhu, *Political Economy of China and India*, 7 HISTORIA ACTUAL ONLINE 123, 126 (2005) (providing history and current state of pollution in India and China with suggestions for improvement).

center of Delhi, incidences of respiratory disease caused by pollution is twelve times higher than the national average.⁵⁵

F. Energy

Today, India is the sixth largest energy consumer in the world and must import seventy percent of its oil.⁵⁶ This is a dramatic increase from 1990 when India supported sixty percent of oil demands with its domestic supply.⁵⁷ As a result of this demand and consumption, India addresses the issue of energy sustainability via energy diplomacy.⁵⁸

Energy is also vital to India's transportation industry, as the energy demand for this sector is expected to grow 4.4 percent per year and account "for 20 percent of the country's total energy consumption in 2025."⁵⁹ With regards to oil, India consumed approximately 2.25 million barrels of oil per day in 2005; a figure that is expected to rise to 3.48 million barrels per day by 2015 and 5.29 million barrels per day by 2025.⁶⁰ These numbers correspond to an approximate 3.2 percent increase in energy demand per year.⁶¹ In response to growing energy demands, nine nuclear reactors are under construction to develop civilian nuclear energy.⁶² In sum,

about 53 percent of India's total energy (and 70 percent of India's electric power generation) is derived from coal. Of the remaining sources: nearly 33 percent is derived

55. See *id.* (providing examples of health consequences as result of poor air quality).

56. See *Energy Trends in China and India*, *supra* note 1, at 1 (opening statement of Hon. Richard G. Lugar, U.S. Senator from Indiana) (examining energy trends in India).

57. See *id.* at 4 (statement of Hon. E. Anthony Wayne, Assistant Secretary for Economic and Business Affairs, Department of State) (reminding panel that India has not made any major oil discoveries since 1970s).

58. See Inst. for the Analysis of Global Sec., India's Energy Security Challenge (Jan. 21, 2004), <http://www.iags.org/n0121043.htm> (summarizing India's energy diplomacy efforts).

59. *Energy Trends in China and India*, *supra* note 1, at 8 (breaking down areas of energy consumption in India).

60. See *id.* at 14. The Energy Information Administration forecast that by 2025 world oil demand will increase by 36.2 million barrels per day (bpd). *Id.* The United States currently needs 20.9 million bpd and will demand 27.93 million bpd by 2025. *Id.* China's demands will nearly double from 6.96 million bpd to 12.79 million bpd in the next twenty years. *Id.*

61. See *id.* at 15 (calculating future energy demands in terms of barrels per day).

62. See *U.S./India Energy Cooperation: Hearing Before the S. Comm. on Energy and Natural Resources*, 109 Cong. 2 (2006) (statement of Hon. Pete V. Domenici, U.S. Senator from New Mexico) [hereinafter *U.S./India Energy Cooperation*] (supporting India's development of civilian nuclear energy program).

from oil; 8 percent from natural gas; 5 percent from hydro-electric power; less than one percent from renewable (solar and wind) sources; and, the remaining 1 percent comes from nuclear energy.⁶³

Finally, according to the Energy Information Administration, emissions resulting from India's fossil fuel consumption account for fourteen percent of total global carbon dioxide emissions, and is projected to increase to eighteen percent by 2025.⁶⁴ Thus, as India continues to demand access to energy and relevant technologies, it must address the environmental consequences of such rapid economic growth.

III. CRITICAL ANALYSIS

As the world's largest democracy, India is relatively progressive in the area of environmental law as compared to other developing nations.⁶⁵ Nevertheless, a disconnect between the judicial and legislative branches impedes the enforcement of environmental regulations.⁶⁶ For example, only an estimated seven percent of small enterprises comply with pollution control guidelines.⁶⁷ Yet, this poor enforcement is the result of corruption and political interference, not a lack of laws and regulations.⁶⁸ Comparatively, it is not drastically more expensive for large scale industries to adopt environmentally friendly technology than for small scale industries.⁶⁹ For the government, however, it is more expensive to travel and inspect many small businesses for compliance than to visit a fewer

63. *Id.* at 6 (Prepared Statement of David Pumphrey, Deputy Assistant Secretary for International Energy Cooperation, Department of Energy) (explaining India's current and projected levels of energy consumption). If India's current civilian nuclear energy program stays on target, it is expected to reach 20,000 megawatts electric by 2020, up from a current capacity of 3,850 (MWe). *Id.*

64. See *Energy Trends in China and India*, *supra* note 1, at 6 (statement of Hon. E. Anthony Wayne, Assistant Secretary for Economic and Business Affairs, Department of State) (expressing environmental concern resulting from Indian and Chinese energy consumption).

65. See Zhu, *supra* note 54, at 126 (referencing India's efforts to protect environment with 1976 constitutional amendment).

66. See Mehta, *supra* note 40, at 143 (stating that "while justice was delivered in the courts, it was flogged in the executive.").

67. See D'Souza and Peretiako, *supra* note 43, at 85 (citing statistics to support India's lack of regulatory enforcement).

68. See David Stuligross, *The Political Economy of Environmental Regulation in India*, PAC. AFF., Fall 1999, 392, 395 (discussing costs of fulfilling environmental goals weighed against desire for continued industrialization and rapid economic growth).

69. See *id.* (explaining cost considerations of implementing environmentally friendly technologies).

number of large businesses;⁷⁰ the Indian government simply does not have the manpower to effectively enforce anti-pollution regulations.⁷¹ Further, broad enforcement of environmental regulations against small scale industries may result in slower economic growth.⁷² This outcome is unfavorable at a time when India is developing “full steam ahead.”⁷³

Enforcement against large businesses is also difficult considering India’s past political climate. The 1990s represented a period of economic liberalization which spurred economic growth and environmental regulation geared towards large scale firms.⁷⁴ In 1996, when the United Front Parties came to power, the then Finance Minister announced that all new small scale firms would be exempt from environmental regulations.⁷⁵ Moreover, the then governing Bharatiya Janata Party (BJP) of the late 1990s filled key ministerial posts with pro-business ministers.⁷⁶

In addition to the lack of resources necessary to increase compliance with environmental regulations, corruption plagues India’s bureaucracy.⁷⁷ Mahesh Chander Mehta, a practicing attorney before the Supreme Court of India, states that corruption affects the Indian government at all levels, and that lower level corruption among regulators and inspectors is a particular “mockery” of India’s governmental system.⁷⁸ “When regulators egregiously ignore their duty to care for the public, they directly encourage the spread of pollution and liquidation of natural resources. When highly polluting factories and illegal development are condoned, we all suffer. Further, corruption causes a liquidation of natural resources

70. See *id.* (explaining difficulties of ineffective oversight and cost stretching).

71. See *id.* (summarizing hardship of environmental enforcement). Policing millions of small scale enterprises presents an extremely difficult burden for underfunded environmental boards. See D’Souza and Peretiako, *supra* note 43, at 85.

72. See Stuligross, *supra* note 68, at 395 (positing difficulties of environmental enforcement against small scale enterprises).

73. See *id.* (defining catch-22 as choice between economic growth and effective environmental regulation).

74. See *id.* at 396 (explaining government’s choice promoting economic growth).

75. See *id.* (providing background for development of pro-business oriented government).

76. See *id.* (stating BJP has interest in maintaining business’s financial success).

77. See Mehta, *supra* note 40, at 143 (arguing pervasive corruption is greatest impediment to environmental protection enforcement in India).

78. See *id.* at 144-45 (expressing frustrations with Executive Branch failure to enforce Supreme Court’s mandates).

and a looting of the treasury.”⁷⁹ Ultimately, the Indian people must emphasize the value of environmental protection and hold corrupt public officials accountable for their enforcement failures.⁸⁰

A. The Role of an Activist Supreme Court

The Supreme Court of India has reacted to perceived bureaucratic failures by taking an activist stance toward the enforcement of environmental regulations.⁸¹ The Court, however, hands down decisions and recommendations that are often too difficult to implement, thus leading to greater confusion in the area of environmental enforcement.⁸² Furthermore, the Court ignores the “logistical difficulties associated with implementation of their ideas of environment protection.”⁸³ Most striking, is the Court’s failure to establish a standard for acceptable pollution; therefore, any level of pollution may constitute a violation.⁸⁴

Moreover, the Court continues to turn a blind eye to current environmental laws, instead creating its own committees and reporting systems.⁸⁵ Rather than this activist position, the Court should take steps to support both current environmental regulations and government actors in their enforcement.⁸⁶ “The results of such activist actions are clear: if the [C]ourt begins to create leg-

79. *Id.* at 145 (reiterating that public officials are responsible to public and accountable for failure to enforce court orders regarding fundamental rights). According to the Transparency International’s 2005 World Corruption Index, India scored a 2.9 out of 10 – 10 being the least corrupt. *Id.* at 143.

80. *See id.* at 155 (stressing importance of vigilant grassroots movement to hold corrupt officials personally and legally accountable for environmental failures).

81. *See id.* 151-52 (explaining executive’s failure to enforce environmental protections necessarily pushes burden upon judiciary).

82. *See* Cha, *supra* note 36, at 206 (framing argument that criticizes Supreme Court’s involvement in environment regulations).

83. *Id.* (explaining courts are unable to balance environment and economic considerations).

84. *See* Anderson & Ahmed, *supra* note 37, at 337 (pointing out Court Orders instruct parties to simply reduce pollution or environmental impact without any specificity).

85. *See id.* (taking view that committees have scientific expertise to handle technical matters). The Supreme Court has usurped this legislative authority through a series of decisions and orders. For example, in *Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh*, (1986) 1985 S.C.R. 652, the Court simply bypassed the power of the Central Board established under the Water Act and appointed lay members of the community to form a committee to report on the limestone quarries at issue in the case. Cha, *supra* note 36, at 212-13 (explaining how judiciary is undertaking legislative duties).

86. *See* Cha, *supra* note 36, at 207 (proposing solution to Court’s activism).

isolation, it bypasses the democratic means.”⁸⁷ By creating its own committees, the Court is signaling to the public that legislatively-created committees are inefficient and lack credibility.⁸⁸ Furthermore, the Court’s criticism of the government and its agencies’ actions undermines any confidence in administrative proceedings.⁸⁹ S.P. Sathe, the director of the Institute of Advanced Legal Studies in Pune, India, summarized that judicial “activism. . . is excessivism when a court undertakes responsibilities normally discharged by other co-ordinate organs of the government.”⁹⁰ Such activism also creates confusion for the individual who no longer knows which agency or committee to turn to for assistance.

There are several facets of the Court’s activism that lead to confusion.⁹¹ When the Court chooses to create its own set of rules, the result is two sets of rules for an individual: court-made and legislative.⁹² It remains unclear, however, which set of rules should prevail. This issue is further complicated by the Court’s power to “review executive and legislative acts.”⁹³ Through these powers, the Court issues decisions without remanding cases to the administrative agency responsible for enforcement.⁹⁴ The Court assumes this power because Amendment 42 of the Indian Constitution states that environmental rights are fundamental rights that are squarely within the realm of the judiciary.⁹⁵ “However, when the [C]ourt begins to rule that fundamental rights are no longer just a means of protecting the citizen against the state, the sanctity of fundamental

87. *Id.* at 212 (theorizing that legislation is made by elected representatives whereas judiciary is appointed body).

88. *See id.* at 213 (speculating on judiciary’s alienation of executive and legislative branches).

89. *See id.* at 216 (stating courts fail to recognize complex and technical nature of environmental issues).

90. *See* Rosencranz & Jackson, *supra* note 38, at 245 (suggesting Indian Supreme Court has overstepped boundaries).

91. For a criticism on the aspects of Indian Supreme Court’s activism in environmental protection, see *infra* notes 92-7 and accompanying text.

92. *See* Cha, *supra* note 36, at 213 (explaining confusion individual litigants face when two branches of government provide conflicting messages).

93. *Id.* at 220 (clarifying courts have authority to affirm or remand matters to appropriate regulatory agency but refuse to do so).

94. *See id.* (stating courts are “replicating the decision making powers of the administration.”).

95. For a discussion of India’s constitutional amendment stating that a clean and healthy environment is a fundamental right, see *supra* notes 22-34 and accompanying text.

rights is destroyed.”⁹⁶ Thus, by taking an extreme activist approach the Supreme Court actually diminishes environmental rights.⁹⁷

Yet, despite criticism of the Supreme Court’s activist approach, the Court’s dedication to environmental issues has increased public and governmental awareness.⁹⁸ Consequently, it is now up to the Indian people to harness this awareness and ensure sustainable environmental protection.⁹⁹

B. Environmental Consciousness

In response to increasing environmental consciousness, India has spurned grassroots movements and non-governmental organizations attempting to tackle the problem.¹⁰⁰ Since 1980, the Center for Science and Environment (CSE), an independent public interest organization, has challenged the Indian government “and the public to confront environmental problems and [search] for solutions that government and communities can implement effectively.”¹⁰¹ These types of organizations must continue to disseminate information and educate the public about the environment.

C. Automobile Emissions

The government’s efforts to curb pollution from automobile emissions requires significant attention. As wealth increases, encouragement of automobile ownership is at odds with government efforts to curb pollution.¹⁰² In Delhi, the number of diesel cars has maintained a growth rate of 16.6 percent per year, compared to half that rate for petrol cars, 8.5 percent per year.¹⁰³ The environmental effect of the rise in diesel car sales has been the creation of

96. Cha, *supra* note 36, at 221 (criticizing dissolution of fundamental rights by Court’s overly activist approach to enforce them).

97. *See id.* (arguing Supreme Court’s actions diminish fundamental rights transforming such rights into ordinary rights).

98. *See id.* at 227-28 (noting environmental protection issues are consistently in public eye).

99. *See id.* at 228 (concluding that judiciary and legislature must work together for India’s environmental protection).

100. *See* Zhu, *supra* note 54, at 128 (citing long history of India’s non-governmental organizations’ involvement in environmental affairs).

101. *Id.* (providing example of organization that aims to increase environmental public awareness).

102. For a discussion on India’s policy on vehicle manufacturing and traffic-related issues, see *infra* notes 103-18 and accompanying text.

103. *See* Letter from Anumita Roychowdhury, *supra* note 7 (highlighting relationship between vehicle tax policies and air pollution).

devastating smog and carcinogenic air.¹⁰⁴ Furthermore, the government fails to encourage auto manufacturers to use cleaner technology.¹⁰⁵ In its efforts to create a tax incentive for the purchase of smaller vehicles, the government inadvertently created a loophole for increasing diesel car sales.¹⁰⁶ In 2006, the Union Minister of Finance reduced the excise duty from twenty-four to sixteen cents.¹⁰⁷ At the same time, it relaxed the engine capacity limits for qualification as a diesel car.¹⁰⁸ As a result, the auto industry responded by developing and promoting a greater number of mid-size diesel vehicles that will fit within the government's definition of a small car.¹⁰⁹ It is estimated that this small "car concession has resulted in price cuts for diesel cars by about Rs 12,000 to Rs 25,000."¹¹⁰ Moreover, India has failed to set fuel economy regulations, "Indian small diesel cars are more than 20 per cent less fuel efficient and 50 per cent more polluting than their counterparts in Europe."¹¹¹ This occurs at a time when governments around the world are imposing higher levies on larger automobiles to minimize their environmental impacts.¹¹²

As expressed in a letter to the Finance Minister,

more diesel cars without a strict clean up target means more severe pollution; more diesel cars without a tax correction means more revenue losses; more diesel cars and cheap diesel under the garb of fuel efficiency means more induced driving, more oil guzzling; and more diesel cars and cheaper rides delay the entry of the ultra fuel-efficient

104. *See id.* (finding that diesel fuel particulates are carcinogens).

105. *See id.* (criticizing Finance Minister for policies that discourage environmentally friendly technology).

106. *See id.* (pointing to deficiency in current tax policy and suggesting tax policy be linked with legal mandate to meet fuel economy standards).

107. *See id.* (outlining theory that tax concession for small cars facilitates production of more diesel cars and increases diesel car sales).

108. *See* Letter from Anumita Roychowdhury, *supra* note 7 (allowing for large numbers of mid-size vehicles to qualify for tax cut).

109. *See id.* (discouraging fuel economy advantages of purchasing smaller cars).

110. *Id.* (explaining correlation between price cuts for diesel cars and rise in air pollution).

111. *Id.* (expressing frustration for current vehicle policies and providing context for said frustration).

112. *See id.* (encouraging Finance Minister to adopt policies that facilitate fuel efficiency, less fuel emissions, and fewer diesel car sales).

and low emissions vehicles, like hybrids, battery operated vehicles and other alternative fuelled vehicles.¹¹³

In December 2001, the Supreme Court of India addressed the issue of vehicular pollution by banning the entry of commercial transit traffic through Delhi, unless Delhi was the destination.¹¹⁴ There are five national highways that connect in the Delhi area.¹¹⁵ The central government responded by advocating the construction of bypasses and expressways around the highways that pass through Delhi.¹¹⁶ Yet, years later, these projects are still incomplete.¹¹⁷ Absent construction compliance, the Court should increase its efforts to enforce Euro III emissions standards that were approved against these extremely polluting vehicles.¹¹⁸ Without wide-scale enforcement, pollution emitted from commercial trucks, combined with a rising number of vehicles on the road will continue to adversely affect the air quality in the Delhi area and throughout the India subcontinent.

D. Nuclear Energy & Energy Diplomacy

To meet its energy demands, the United States Congress recently agreed to provide India with civilian nuclear technology.¹¹⁹ Unfortunately, earlier efforts to develop civilian nuclear technology

113. Letter from Anumita Roychowdhury, *supra* note 7 (exposing current tax policies as counter to public policy).

114. AIR POLLUTION BULLETIN, *supra* note 48 (assessing impact of reduction of transit trucks).

115. *See id.* (explaining tremendous volume of Delhi-bound commercial trucks).

116. *See id.* (reiterating plan in response to Supreme Court's ruling that "no corridor joining different highways should pass through Delhi.").

117. *See id.* (stating lack of progress in joining highways according to plan in response to Supreme Court's ruling).

118. *See id.* (proposing that efforts are stepped up to phase out vehicles that only comply with Euro I and II levels). Trucks on the highways "continue to stagnate at Euro I and Euro II levels." *Id.* Through a series of European Union directives, European emissions standards define the acceptable limits for exhaust emissions. European I, II, III and IV levels are standards for heavy duty vehicles. European I and II standards took effect in 1993 and 1996 respectively. European III and IV standards took effect in 2000 and 2005 respectively. *See* Europa Summaries of Legislation, Motor Vehicles With Trailers: Polluting Emissions, <http://europa.eu/scadplus/leg/en/lvb/l21047.htm> (last visited Nov. 12, 2008).

119. *See* Peter Baker, *Senate Approves Indian Nuclear Deal*, N.Y. TIMES, Oct. 1, 2008, available at <http://www.nytimes.com/2008/10/02/washington/02webnuke.html?scp=1&sq=condoleezza%20india&st=cse> (summarizing Senate approval by a vote of 86 to 13 in favor of nuclear agreement between India and the United States to share civilian technology).

Under the terms of the deal the United States will provide India with access "to nuclear fuel, technology and reactors to India for peaceful energy use." *Id.* *See generally* World Nuclear Association, Nuclear Power in India, [Published by Villanova University Charles Widger School of Law Digital Repository, 2009](http://www.world-</p>
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were hampered by India's refusal to sign the Nuclear Non-Proliferation Treaty.¹²⁰ As a result of this isolation, India's reactors have some of the lowest capacity.¹²¹

For India to continue its civilian nuclear efforts, there must be a greater expansion of global trade and cooperation. To this end, Russia is assisting with India's first large nuclear power plant by supplying the necessary fuel, while India will reprocess the fuel and reserve the plutonium.¹²² This is a positive step towards India's goal of producing twenty-five percent of its electricity from nuclear power by 2050.¹²³

Furthermore, the United States has encouraged greater cooperation with India towards its development of civilian nuclear technology.¹²⁴ The preliminary nuclear agreement reached between India and the United States in 2005 encouraged the United Kingdom, Canada and France to relax their grip on nuclear technologies and make them available to India.¹²⁵ Beyond this cooperative

nuclear.org/info/inf53.html (last visited Oct. 28, 2008) (briefing India's previous access to nuclear technology).

120. See World Nuclear Association, *supra* note 119 (explaining India's refusal to sign Non-Proliferation Treaty has led to India's isolation). India is excluded from the Nuclear Non-Proliferation Treaty because it acquired nuclear capabilities after 1970. *Id.* The five countries that had acquired nuclear weapons before 1970 were accorded status as Nuclear Weapons States under the Non-Proliferation Treaty. *Id.* The recent nuclear agreement is "a historic breakthrough for India, which struggled against sanctions and denials of high technology as a nuclear pariah for more than three decades because it refused to sign the Nuclear Non-Proliferation Treaty (NPT) and developed a weapons programme [sic]." See Seema Sirohi, *A Win-Win Situation for India*, BBC News, Oct. 9, 2008, http://news.bbc.co.uk/2/hi/south_asia/7650286.stm (noting that Indo-US civil nuclear agreement has ended India's nuclear isolation).

121. See World Nuclear Association, *supra* note 119 (stating India improved reactors from mid-1990s through to 2001-02). Capacity factors rose from sixty percent in 1995 to eighty-five percent in 2001-02. *Id.*

122. See *id.* (reporting on Russia's willingness to assist India in expanding civilian nuclear technology program). For example, Russia is helping India build its first large plant and there are plans for Russia to help build more plants in the future. *Id.*

123. See *id.* (expressing India's future goals for energy sustainability). Twenty-five percent of nuclear contribution by 2050 is the equivalent of one hundred times the 2002 capacity. *Id.*

124. See *Energy Trends in China and India*, *supra* note 1, at 10 (statement of E. Anthony Wayne, Assistant Secretary for Economic and Business Affairs, Department of State) (summarizing details of President Bush's agreement with Prime Minister Manmohan Singh to achieve full civil nuclear energy cooperation).

125. See World Nuclear Association, *supra* note 119 (indicating Canada and European nations have followed United States' step forward supporting India's development of greater civilian nuclear technology). See also C. Raja Mohan, *India's Global Strategy*, FOREIGN AFF., July-Aug. 2006, at 25, 25-26 (summarizing Britain and France's support for India's development of a civilian nuclear energy program). See also Jonathan Marcus, *Hurdles Ahead for Landmark Nuclear Deal*, BBC

effort, it is important to note the United States recognizes that both India and the United States “depend heavily upon domestic supplies of coal for electric power generation and seek to increase their utilization of natural gas, renewable energy and nuclear power.”¹²⁶ This statement represents a positive direction for India, since it needs access to technology and western cooperation in order to sustain its growing energy demands.¹²⁷ It also debunks the Indian perception of the United States as an obstacle to India’s efforts to meet energy demands; especially in light of the recent agreement between the United States and India to share civilian nuclear technology.¹²⁸

A major concern for the United States, however, has been India’s discussions and plans to build pipelines through the Persian Gulf and Burma.¹²⁹ In order to build these pipelines, serious geopolitical rivalries will need to be resolved.¹³⁰ For example, the natural gas pipeline planned from Iran would be directed via

News, Mar. 2, 2006, http://news.bbc.co.uk/2/hi/south_asia/4766608.stm (underscoring certain delays in congressional and parliamentary approval of United States’ nuclear agreement with India).

126. *Energy Trends in China and India*, *supra* note 1, at 16 (statement of David K. Garman, Under Secretary for Science and Environment, Department of Energy) (explaining how United States and India entered energy cooperation discussions and negotiations). On May 31, 2005, the United States began discussions with India regarding five areas: oil and gas, coal, power and electricity, new technology, and civilian nuclear technology. *Id.*

127. See Gordon Feller, *India’s Energy Future: New Alliances with Neighbors, the Global South, & the Energy Axis of Russia, Iran, and China*, ECOWORLD, June 17, 2005, <http://ecoworld.com/features/2005/06/17/indias-energy-outlook/> (clarifying India’s efforts to secure foreign resources through energy diplomacy). See also Inst. for the Analysis of Global Sec., *supra* note 58 (discussing India’s attempt at diplomacy with oil producing neighbors in Asia).

128. See *Energy Trends in China and India*, *supra* note 1, at 31 (statement of Mikal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (responding to Indians’ reaction that they have been isolated from access to new and improved technology). See also Baker, *supra* note 119 (announcing congressional approval of nuclear agreement between United States and India).

“Under the deal, Delhi can keep its nuclear weapons and also buy nuclear fuel and technology for its civilian energy needs. India got to have its cake and eat it too because the world recognised [sic] its huge energy needs, its growing strategic eminence in Asia and its clean non-proliferation record.”

Sirohi, *supra* note 120.

129. For a discussion of the United States’ concern over a pipeline from Iran, see *infra* notes 129-35 and 147-51 and accompanying text. See also *Bush U-Turn on Iranian Pipeline*, BBC News, Mar. 4, 2006, http://news.bbc.co.uk/2/hi/south_asia/4774312.stm. (stating United States viewpoint on Iranian pipeline).

130. See *Bush U-Turn on Iranian Pipeline*, *supra* note 129 (referring to India’s regional plans). India has initiated discussions to build a natural gas pipeline from Iran through Pakistan, has partnered with China in Sudan, and is considering another pipeline through Myanmar. *Id.*

Pakistan.¹³¹ The United States is also concerned that India continues to bid on oil, and has now acquired access to over fifty percent of its total oil supply from the Middle East.¹³² This appeals to Middle Eastern nations that want to diversify their customer base beyond the United States and Europe.¹³³ In sum, these developments will help make India a major player in the Middle East;¹³⁴ as a developing nation, India's energy demands place it in an influential position.¹³⁵

In addition to these concerns, there are three other key considerations for the United States in providing assistance to India for meeting its energy demands.¹³⁶ First, is the potential for rivalry between India and China for energy resources.¹³⁷ Currently, India and China vie for access to energy resources and engage in direct competition.¹³⁸ This approach may negatively impact Sino-Indian relations and spillover into military and security interests. For example, tension is already brewing over India's attempts to expand its naval capabilities and cooperation with Southeast Asian nations, as well as over China's port access expansion in Pakistan, Myanmar, and Bangladesh.¹³⁹

131. See *Energy Trends in China and India*, *supra* note 1, at 35 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (providing informational background on construction of natural gas pipeline from Iran to India via Pakistan).

132. See *id.* at 31 (stressing India's growing dependence on foreign oil supplies).

133. See *id.* at 36 (explaining different points of view regarding India's and China's oil involvement in Persian Gulf).

134. See Mohan, *supra* note 125, at 32 (referring to expansion of India's role leading to global redistribution of economic power).

135. See *id.* (stating India could serve as role model for other developing nations and will become key player in modernizing Middle East).

136. For an explanation of the United States' three major geopolitical concerns, see *infra* notes 137-55 and accompanying text.

137. See *Energy Trends in China and India*, *supra* note 1, at 37 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (expressing concern over Sino-Indian relationship). The Indian Oil and Natural Gas Corporation (ONGC) has openly engaged in oil bidding wars with the China National Petroleum Corporation (CNPC). CNPC, however, is much larger and operates with a significantly larger budget; until 2003 India's ONGC international spending on oil rights was 3.5 billion dollars, compared to that of CNPC which was over 40.0 billion dollars. Feller, *supra* note 127 (iterating India's keenness to provide for energy security).

138. See *Energy Trends in China and India*, *supra* note 1, at 37 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (summarizing India's concern over open competition for energy resources with China).

139. See *id.* (summarizing geopolitical concerns of Indian and Chinese competition for energy resources).

Secondly, the United States is concerned with how Asian oil dependence on the Persian Gulf will impact America's interests.¹⁴⁰ Presumably, a greater reliance on Middle Eastern oil will improve demands for regional stability and, therefore, India and the United States' interests will converge.¹⁴¹ According to Mikkal E. Herberg, Director of the Globalization and Asian Energy Security Program, it seems unlikely that India (or China) would do anything to destabilize the region, "such as stepping up arms and missile sales or contributing to nuclear proliferation, and would be more likely to free ride on U.S. efforts to maintain stability in the region."¹⁴² From the United States' standpoint, its authority in the region is unlikely to be challenged, particularly because "only the United States can provide the military and strategic umbrella to protect them in this very volatile region and provide the strategic naval and air power projection to protect vital tanker routes and chokepoints like the Straits of Hormuz."¹⁴³

Nevertheless, while India may be disinclined to engage in activities that could destabilize the region, there may be a rise in political disagreements.¹⁴⁴ Specifically, India did not support the United States' initial involvement in Iraq and has traditionally criticized the United States' Israeli-Palestinian approach.¹⁴⁵ Thus, it is likely that there will be disagreements and complications over the United States' current policies and practices in the region. This particularly comes to a head regarding Iran.¹⁴⁶

As the United States continues to promote a policy of isolating Iran, India seeks access to a pipeline through Iran.¹⁴⁷ Significantly, this is already a source of friction for the United States. India, how-

140. For a discussion of the United States' oil interest in the Middle East and Persian Gulf regions, see *infra* notes 141-51 and accompanying text.

141. See *Energy Trends in China and India*, *supra* note 1, at 37 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (suggesting India and China have mutual interest in stability in Middle East).

142. *Id.* (reiterating United States dominant position in Middle East as derivative of military might).

143. *Id.* (referring to United States continuing hegemony in Persian Gulf).

144. For a discussion of the potential political disagreements between United States and India, see *infra* notes 145-51 and accompanying text.

145. See *Energy Trends in China and India*, *supra* note 1, at 37 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (expressing fear that complications will arise with U.S. policy in region as India's involvement in region grows).

146. See *id.* (citing China's continued arms supply to Iran despite United States' belief that Iran sponsors terrorism and regional instability).

147. See *id.* (noting India's most viable means of obtaining natural gas from Caspian and Central Asia is through pipeline via Iran and Pakistan).

ever, has preemptively sought to address these concerns by proposing that Iran and Pakistan be responsible for the construction, maintenance, and safety of the pipeline until it reaches the Indian border.¹⁴⁸ Under this proposal, Iran and Pakistan could only stand to lose from sabotage or cessation of the pipeline's operation.¹⁴⁹ While the United States is concerned that Iran's revenues from the pipeline will be used to develop nuclear weapons, this concern does not bear upon India, "especially if the United States cannot offer India a viable alternative."¹⁵⁰ If the United States makes this a prominent issue, it may cause its developing relationship with India to become strained.¹⁵¹

Finally, the United States must balance India's growing need for nuclear energy with the risks of nuclear proliferation and safety issues.¹⁵² These concerns should create pressure to improve the international framework for handling nuclear technology and push for new methods and solutions to nuclear waste disposal.¹⁵³ India has agreed to full-scope safeguards and has ensured that any technology acquired will be for civilian nuclear technology purposes only.¹⁵⁴ Despite previous concerns over India's nuclear expansion,

148. *See id.* at 50 (statement of Prof. Sumit Ganguly, Professor of Political Science and Director of the India Studies Program, Indiana University) (summarizing India's efforts to quell America's contentious perspective). Furthermore, the pipeline may diminish tensions between India and Pakistan as Pakistan may be hesitant to promote Indian hostilities at the risk of losing potential revenues in excess of one billion dollars earned from transit duties alone on the natural gas. *Id.* *See also* Feller, *supra* note 127 (providing positive aspects of pipeline from Iran to India via Pakistan).

149. *See Energy Trends in China and India*, *supra* note 1, at 50 (statement of Prof. Sumit Ganguly, Professor of Political Science and Director of the India Studies Program, Indiana University) (maintaining all parties have security interest in maintaining successful operation of pipeline).

150. *Id.* at 51 (reciting unfairness of asking India to not be involved with Iran while failing to provide alternative when India desperately needs to secure energy supplies).

151. *See id.* (speculating impact if United States becomes hostile towards India's natural gas interests in Iran).

152. For a discussion of the potential risks of nuclear proliferation if India is given access to civilian nuclear technology, see *infra* notes 153-55 and accompanying text.

153. *See Energy Trends in China and India*, *supra* note 1, at 38 (statement of Mikkal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (citing need to readdress nuclear proliferation and energy as China and India seek access to civilian nuclear technology).

154. *See Baker*, *supra* note 119 (making fourteen Indian nuclear facilities available for international inspection). *See also* Paul Reynolds, *What Fallout From Indian Nuclear Deal?* BBC News, Oct. 3, 2008, http://news.bbc.co.uk/2/hi/south_asia/7650209.stm (summarizing inspection arrangements and global reactions to recent deal between United States and India to share civilian nuclear technology).

India's continued economic growth depends on energy alternatives and access to civilian nuclear technology.¹⁵⁵

IV. IMPACT

Over the last decade, India has been blessed with a booming economy and rapid industrial growth.¹⁵⁶ This economic growth has forced India to cope with increased energy demands, new technological growth, and the environmental consequences that accompany movement from a third world country to a developed nation.

With continuous development, however, comes greater pollution and greenhouse gas emissions.¹⁵⁷ In 1990, India's greenhouse gas emissions constituted three percent of the world's greenhouse gas emissions, and rose to four percent by 2000.¹⁵⁸ This one percent change represents a 4.2 percent increase in greenhouse gas emissions per annum.¹⁵⁹ While this may seem rapid, the absolute value of these emissions is still one-sixth of the United States' emissions.¹⁶⁰

As India continues to disperse greater greenhouse gases, there is an international political response pushing for stricter emissions standards.¹⁶¹ Developing nations view the burden placed upon them to adopt cleaner technology and adapt to international stan-

For a general background on the issue *see also* Mohan, *supra* note 125, at 28 (emphasizing India's willingness to cooperate with international safeguards).

155. *See* Sirohi, *supra* note 120 (summarizing benefits of nuclear agreement for India). *See also* Feller, *supra* note 127 (asserting India's need to secure overseas energy resources).

156. *See Key Facts: India Rising*, BBC News, Jan. 22, 2007, http://news.bbc.co.uk/2/hi/south_asia/6257057.stm#economy (providing detailed statistical evidence of India's rise).

157. *See Energy Trends in China and India*, *supra* note 1, at 38 (statement of Mikal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (implicating environmental consequences of transportation and coal use).

158. *See* Sharma et al., *supra* note 48, at 326 (citing South Asian region greenhouse gas statistics in compliance with United Nations Framework Convention on Climate Change (UNFCCC)).

159. *See id.* at 328. (reporting India's growing greenhouse gas emissions). Despite current trends of four percent greenhouse gas emissions, it is projected that the absolute level of greenhouse gas emissions in 2020 will still be below five percent of global emissions "and the per capita emissions will still be low compared to most of the developed countries as well as the global average." *Id.* at 326.

160. *See id.* (providing comparison of greenhouse gas emissions with developed world).

161. *See* Ruth Gordon, *Climate Change and the Poorest Nations: Further Reflections on Global Inequality*, 78 U. COLO. L. REV. 1559, 1609 (2008) (considering perspectives of third world on climate change).

dards with hostility.¹⁶² Developing nations maintain that “industrialized countries owe their current prosperity to years of historical emissions, which have accumulated in the atmosphere since the start of the industrial revolution [while] developing countries have only recently set out on the path of industrialization and their [greenhouse gas] emissions are still low.”¹⁶³ As a result of this perception, “these nations have insisted that any multilateral treaty adopted by the international community not hinder their development efforts, perceiving a palpable distinction between opulent rich nation emissions and their necessary development emissions.”¹⁶⁴ It is unfair for developed nations to impose constraints and additional burdens upon nations simply trying to “catch up.” Furthermore, these additional constraints may hamper economic growth; in fact, limits on greenhouse gases are viewed as a limit on economic growth.¹⁶⁵ India, caught in the middle, will either have to adopt cleaner technologies and ease the financial burdens for small scale industries, or continue to pollute the environment and endanger the climate.¹⁶⁶

While India’s Supreme Court is incredibly activist in issuing decisions that aim to protect an individual’s right to clean air, water, and the overall environment, there must be a bureaucratic breakthrough.¹⁶⁷ Administrative agencies must break the shackles of corruption and enforce the Court’s decisions.¹⁶⁸ The relevant administrative agencies should enforce their environmental mandates and vigilantly require compliance from both large and small

162. *See id.* (reflecting belief that developing countries are overwhelmed by international environmental regulation and may view regulation as obstacle to industrialization).

163. *Id.* at 1601 (quoting Anil Agarwal, *A Southern Perspective on Curbing Global Climate Change*, in *CLIMATE CHANGE POLICY: A SURVEY* 375, 376 (Schneider et al. eds., (2002)) (noting need for leniency in emissions to promote industrialization)).

164. *Id.* (exploring third world countries’ feelings towards West’s imposition of environmental regulations).

165. *See id.* at 145 (stating potential limits on greenhouse gas emissions could freeze global inequalities if third world nations are not allowed to emit necessary gases for industrialization).

166. *See* D’Souza and Peretiakto, *supra* note 43, at 90 (citing fear of depressed profits as restriction to using pollution-control measures). In a survey conducted, one hundred percent of small enterprises responded that “access to finance for pollution-control measures was a major problem. By comparison, of the larger enterprises that responded to the survey 34.7% per cent said finance was a major problem.” *Id.* at 89.

167. For a discussion of the need for bureaucratic breakthrough regarding environmental law, see *supra* notes 22-34 and 81-97 and accompanying text.

168. *See* Mehta, *supra* note 40, at 145 (proposing that officials who fail to enforce decisions or fulfill administrative environmental duties be held personally liable under Accountability Principle).

scale industries.¹⁶⁹ Furthermore, an overall policy is necessary to define priorities and principles in a strong effort to improve compliance.¹⁷⁰ Yet, it is important to remember that India is on the right path to the extent that the judiciary and legislative branches are addressing environmental protection.¹⁷¹ As a population giant, India should reconcile its energy demands and economic modernization with environmental protection.¹⁷²

There is little doubt that both India's and China's increasing energy demands will burden the global market for oil, natural gas, coal and other resources in the foreseeable future.¹⁷³ This strain will force industrialized nations, including the western world, to adopt new energy initiatives to sustain their own access and demands for resources. The United States is legitimately concerned that India and China have begun to stockpile oil and scour the world for access to new oil resources.¹⁷⁴ Moreover, as India continues to breed a new middle class, its demand for automobiles also increases.¹⁷⁵ As long as there are cars, there will be a demand for oil.¹⁷⁶

169. See *id.* (advocating equal enforcement for both large and small scale enterprises).

170. See D'Souza and Peretiakto, *supra* note 43, at 85 (citing India's lack of comprehensive environmental policy).

171. See Cha, *supra* note 36, at 227 (restating issue as to what is most effective means of environmental protection).

172. See Zhu, *supra* note 54, at 131 (speculating India's development will experience greater international acceptance if committed to environmental protection).

"Due to its large population, economic development is crucial for an emerging economy such as India. A growing population has made industrial development one of the Indian government's highest policy priorities; it is an important element of economic development as it assists in raising national income at a more rapid pace." *Id.*

See also D'Souza and Peretiakto, *supra* note 43, at 82 (summarizing particular challenges related to large and growing population).

173. See *Energy Trends in China and India*, *supra* note 1, at 29-30 (statement of Mikal E. Herberg, Director, Globalization and Asian Energy Security Program, National Bureau of Asian Research) (stating Asia's dependence and demand for oil will accelerate for next two decades).

174. See *id.* at 29 (observing that taking oil off market may create competition for barrels when "the markets are tight" and affect American oil supplies). In order to minimize the impact of a global oil crisis India has begun construction of crude oil reserve facilities off its coasts. *Id.* See Inst. for the Analysis of Global Sec., *supra* note 58 (citing India's preparations for any potential supply disruptions).

175. See UNITED NATIONS ENVIRONMENTAL PROGRAMME, INDIA: STATE OF ENVIRONMENT, pt. II, 20 (2002), available at http://www.rrcap.unep.org/reports/soe/india_part2.pdf (citing phenomenal increase in personal automobiles in India).

176. See Ashton B. Carter, *America's New Partner?*, FOREIGN AFF., July-Aug. 2006, at 33, 41 (stating transportation sector is principal oil consumer). "India's energy demand for transportation is expected to grow at an average rate of 4.4 percent a year, and the transportation sector is expected to account for 20 percent

On an international scale, India's rapid industrialization creates a demand for greater monitoring and for institutions to handle environmental degradation.¹⁷⁷ To this end, the United Nations Environment Programme (UNEP) must devote greater resources to tackle the connection between industrialization and climate change with environmental protections.¹⁷⁸ In fact, the Regional Director for Asia Pacific of UNEP, Surendra Shethra, has stated "it is appropriate that India take the leadership to address the issue of carbon emissions for developing countries."¹⁷⁹ At this juncture, India must reconcile its industrial and economic development with environmental degradation and energy sustainability.¹⁸⁰

The concern over assuring adequate energy supplies has fostered a strategic relationship between the United States and India.¹⁸¹ This relationship has led efforts to drill for off-shore hydrates and to support energy efficiency and investment in renewable energy.¹⁸² While it is unclear what long term impact these initiatives will have, they are important steps toward maintaining the United States' access to energy and assuring that India will have the supply it needs to become a developed nation.¹⁸³ In reality, "both nations depend heavily upon domestic supplies of coal for electric power generation and seek to increase their utilization of natural

of the country's total energy consumption in 2025." *Energy Trends in China and India*, *supra* note 1, at 8 (prepared Statement of Anthony Wayne, Assistant Secretary for Economic and Business Affairs, Department of State) (forecasting transportation-related energy usage).

177. Press Release, Univ. of California Riverside, UCR Scientists Help Train Indian Colleagues in Air Pollution Management (July 24, 2006), *available at* <http://www.newsroom.ucr.edu/cgi-bin/display.cgi?id=1379> (hoping pilot program will attract international support for India's environmental efforts).

178. *See U.S./India Energy Cooperation*, *supra* note 62, at 9 (prepared statement of David Pumphrey, Deputy Assistant Secretary for International Energy Cooperation, Department of Energy) (stating key element of energy sustainability is data collection and information exchange).

179. Acharya, *supra* note 50 (citing India's need to serve as role-model to developing world).

180. *See D'Souza and Peretiatko*, *supra* note 43, at 94 (suggesting India be environmentally conscious of economic growth).

181. *See U.S./India Energy Cooperation*, *supra* note 62, at 2 (opening statement of Hon. Pete V. Domenici, U.S. Senator from New Mexico) (encouraging strategic relationship between United States and India as means to encourage developing world to adopt sustainable energy sources and to lead to opportunities for United States' industry in nuclear power resurgence).

182. *See id.* at 4 (statement of David Pumphrey, Deputy Assistant Secretary for International Energy Cooperation, Department of Energy) (hoping to accelerate efforts to develop new resource).

183. *See id.* (referring to President George W. Bush's concern about ensuring adequate energy supplies).

gas, renewable energy and nuclear power.”¹⁸⁴ Furthermore, India was the first country to join the United States in the FutureGen alliance.¹⁸⁵ As part of this initiative, the FutureGen partnership will enable the greater use of coal in an environmentally friendly way.¹⁸⁶ By adopting this technology, India may reduce the density of future greenhouse gas emissions from burning coal.¹⁸⁷ In addition, the United States Department of Energy is working with India to develop an emergency response plan to a potential oil crisis situation.¹⁸⁸

India is currently experiencing unprecedented economic growth which will potentially lift millions of Indian citizens out of poverty, providing them with a better life.¹⁸⁹ It is imperative that the western world recognize an interest in India’s continued growth and assist India in meeting its energy needs while protecting the environment. It is on the shoulders of every developed nation to assist developing countries, such as India, by providing access to cleaner technology, civilian nuclear technology, and initiatives for energy sustainability.¹⁹⁰ The strain that India and China will place on the global marketplace cannot be denied; because of this, it is in

184. *Id.* at 7 (referencing both India’s and United States’ dependence on foreign oil imports).

185. *See id.* (planning to construct and operate first ever near-zero emissions power plant).

186. *See U.S./India Energy Cooperation*, *supra* note 62, at 7 (prepared statement of David Pumphrey, Deputy Assistant Secretary for International Energy Cooperation, Department of Energy) (explaining one of several projects United States is cooperating with India to increase India’s domestic coal resources).

187. *See id.* (stating ultimate goal of FutureGen project). India has also adopted several clean coal initiatives on its own, such as coal washing. Sharma et al., *supra* note 48, at 330 (summarizing India’s climate-friendly initiatives). The International Energy Agency projects that the rising energy demands between India and China will account for a two thirds global increase in coal use between 2005 and 2030. Zhu, *supra* note 54, at 131 (citing statistics regarding future energy use).

188. *See U.S./India Energy Cooperation*, *supra* note 62, at 10 (prepared statement of David Pumphrey, Deputy Assistant Secretary for International Energy Cooperation, Department of Energy) (assisting India in developing cooperative crisis response through strategic crude oil reserves).

189. *See id.* at 10 (concluding remarks).

190. *See id.* at 3 (statement of Hon. Jim Bunning, U.S. Senator from Kentucky) (supporting cooperation as means for spreading new technology and improving energy production and marketplace). The Senator specifically stated “[i]n partnership with India, we can apply the newest clean coal technologies and mining techniques. India will benefit from our experiences . . . we can increase the efficiency of India’s production and usage.” *Id.*

the best interest of the nations of the world to address these concerns now, and put measures in place before it is too late.¹⁹¹

With a population of over one billion people, India will play an increasingly important role in the world's economy and energy markets.¹⁹² As India explores the availability of energy resources in the Middle East, it could impact the geopolitical affairs of the area and shift influences within the region.¹⁹³

India is now emerging as the swing state in the global balance of power. In the coming years, it will have an opportunity to shape outcomes on the most critical issues of the twenty-first century: the construction of Asian stability, the political modernization of the greater Middle East, and the management of globalization.¹⁹⁴

India matters both on a domestic and an international front; its economic growth will affect Indians and citizens of the world alike. India and the international community would do well to consider these facts and cooperate towards the mutually beneficial goals of environmental protection and energy sustainability.

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191. See *Energy Trends in China and India*, *supra* note 1, at 4 (statement of Assistant Secretary for Economic and Business Affairs, Department of State) (stating that projected oil demands of India and China have initiated series of policies to improve oil securities and promote energy diplomacy).

192. See *U.S./India Energy Cooperation*, *supra* note 62, at 1 (statement of Hon. Pete V. Domenici, U.S. Senator from New Mexico) (explaining India's population will surpass China in next fifty years and will double energy consumption in next twenty-five years).

193. For a discussion of potential political conflicts arising out of India's economic growth and energy diplomacy efforts, see *supra* notes 129-51 and accompanying text.

194. Mohan, *supra* note 125, at 17 (emphasizing India's potential effect on world's stage in twenty-first century).

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